Before the
Federal Communications Commission
Washington, D.C. 20554

In Matter of	)	
Digital Audio Broadcasting Systems	)	MM Docket No. 99-325
And Their Impact on the Terrestrial	)	
Radio Broadcasting Service	)	DA 04-1007
	)	
Re: Public Notice dated April 14, 2004	)	
Comment Sought On Use Of Digital AM	)	
Transmissions During Nighttime Hours	)	

INTRODUCTION

The following material is being filed in response to both the FCC Public Notice Comment Sought On Use of Digital AM Transmissions During Nighttime Hours DA 04-1007 Dated April 14, 2004 and also the Further Notice of Proposed Rulemaking And Notice of Inquiry Released on April 20, 2004, both of which are part of MM Docket No. 99-325.

The reason for filing these Comments[1] in the two Inquiries is that not only does this material prove why the AM IBOC System under investigation (IBOC-ui)[2] can not operate satisfactorily at night[3], but it also shows why the undersigned truly believes that the IBOC-

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[1]These Comments are based upon the engineering opinions of the undersigned and are the result of analysis, discussions with other engineers, and also tests that he personally performed or that were performed under his supervision. He is a PE, a former Adjunct Prof. of Electrical Engineering and for purposes of full disclosure it is necessary to state that he is President of Kahn Communications, Inc. (KCI), a firm that has recently developed a new type of IBOC system, the Cam-D™ System.

[2]In the following the term IBOC-ui, which stands for the IBOC system "under investigation," is used to distinguish it from other competitive systems such as KCI's newly developed Cam-D™ IBOC System.

[3]Reunion Broadcasting's comments were written by its Manager, D. Stanley Tacker, Esq., who is also a well respected Communications Attorney, describes in detail why the IBOC-ui System would violate current allocation standards if permitted to operate at night. His analysis is based upon the published figures issued by the Proponents of this System. What makes this argument even more compelling is that the engineering figures used are orders of magnitude too conservative. Reunion concludes that the proper legal approach would be permit free competition between spectrum efficient, truly compatible AM Digital Hybrid Systems to be expeditiously introduced whether these techniques be "developed by Ibiquity or are developed by any other party."

ui system never could have complied with FCC Rule 47 CFR 73.44.

COMMENTS

The inherent flaw with the IBOC-ui System is that its design is based upon meeting this Rule limiting interference which was developed for testing Analog signals and never was expected to be used to test Digital signals.[4]

The following simplified analysis is based upon the modulation characteristics of the IBOC-ui System.

Present Commission Rules limit "splatter" from stations to maximum power levels below the operating power (as defined by a set of numbers) to no more than a single occurrence over a period of 10 minutes of normal operation. This specification, 47 CFR 73.44, is extremely easy to meet and it was adopted by the FCC to permit the Motorola AM Stereo System to remain in the marketplace when it was proven that it could not pass the prior rules in place even prior to 1934, when the FCC initiated control of radio interference. The following basic analysis permits one to see the seriousness of the

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[4]Mr. T.C. Cutforth, President of Vir James, an engineering firm that has prepared some 1000 applications over its 50 year history treats the IBOC-ui nighttime interference problem from an engineering standpoint stressing that not only is its interference a fatal flaw, but also the system is not really compatible with the 800 million radios Americans own, and that IBOC-ui severely reduces the coverage of AM stations diminishing their service to the Public. Mr. Cutforth also reports that a Denver station that was one of the few (30) AM stations that put the IBOC-ui system on the air, turned it off after only 2 weeks of operation. (I believe the record speed of turn-off is one (1) day by a major station in Philadelphia.) Mr. Cutforth makes the engineering point that the Rule the IBOC-ui System claims to meet was based on testing Analog, not Digital waves, and is clearly inappropriate for use in testing Digital signaLs. Mr. Cutforth, as did Mr. Tacker, concludes that the Public will be best served by the free marketplace stating: "I request that the minimum federal limitations be applied to the exact technologies of digital broadcasting technology so that broadcasters and the public can benefit from incremental changes in digital broadcasting technology in a timely fashion."
In other words, let the free market function ASAP.

problem.[5]

As one will recall it takes energy to perform work...even if your work is interfering with other radio stations. Energy bears a simple relationship to power. Energy = Power*Time Thus, if the power is constant you just multiply it by time and that is your answer. (If power varies with time you have to integrate and dust off your knowledge of calculus. Fortunately, the power of the IBOC-ui wave is constant even for very short periods of time.)

Thus, the IBOC-ui energy is orders of magnitude greater than permitted by the present FCC rules and assuredly would have violated the rules in force when AM radio broadcasting began. The actual number is so large that, as an engineer, I am unwilling to publish such figures absent confirming laboratory measurements.[6] Obviously I am not in a position to make such measurements as they require the tapping of a station's antenna network to obtain a sample free of interference from other stations.

Accordingly, the Commission must rely upon the stations using the IBOC-ui System to perform tests to check compliance with Section 73.44. In my opinion, based on a detailed study of the problem, listening to a station using the IBOC-ui system at innumerable locations, viewing its spectrum characteristics and hearing the results of similar tests made by a number of reputable engineers all over the United States, some of whom have had hands-on experience with the IBOC-ui equipment, stations using that

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[5]This analysis cannot be precise and actual interference figures are best provided by measurements, as the developers have not yet disclosed the exact parameters of their signal, even after a decade of development.

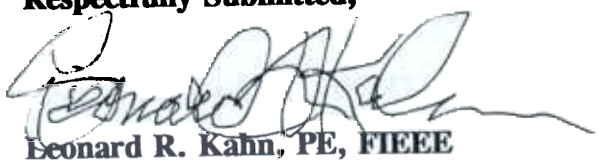
[6]I did perform, along with my colleagues at KCI, tests on our Cam-D™ System to see how far down our noise-like data signals had to be to render them inaudible so as to avoid interfering with other stations. The numbers are in the same order of energy content as my analysis shows is required for the IBOC-ui System.

System are apparently violating FCC Rules and their continued reliance on old erroneous measurements would render their actions, in my opinion, to be serious and willful violations of FCC Regulations. Hopefully, the developers of the IBOC-ui system will also, in their Reply filings, state how they could have claimed, in prior submissions to the Commission, that their system met Section 73.44 entitling them to put their signal on-the-air. (It should be stressed that KCI's Cam-D™ System, using new technology, fully complies with FCC Rule 47 CFR 73.44.}

CONCLUSION

In view of the above, it is my opinion that no station using the IBOC System under investigation should be permitted nighttime operation as such operation will destroy useful AM radio service to millions of Americans, clearly in violation of the Public Interest.

Respectfully Submitted,



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